Constructing reality and its alternatives: an inclusion/ exclusion model of assimilation and contrast effects in social judgment

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Veröffentlichungsversion / Published Version
Forschungsbericht / research report

ZUMA-ARBEITSBERICHT No. 91/05

The enclosed reprint replaces ZUMA-Arbeitsbericht No. 91/05 by the same authors.

Schwarz, N., & Bless, H. (1992). Constructing reality and its alternatives: Assimilation and contrast effects in social judgment. In L.L. Martin & A. Tesser (Eds.), The construction of social judgment (pp. 217-245). Hillsdale, NJ: Erlbaum.

The Construction of Social Judgments

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LAWRENCE ERLBAUM ASSOCIATES, PUBLISHERS
1992 Hillsdale, New Jersey Hove and London

finding that evaluations of moderate stimuli are displaced away from ratings of extreme stimuli, reflecting a contrast effect. Another group of models focused on categorization processes (e.g., Herr, Sherman, & Fazio, 1983; Sherif & Hovland, 1961; Tajfel, 1959, 1981; Tajfel & Wilkes, 1963; Turner, 1987). According to these models, assimilation effects are likely to emerge when the target stimulus and the context stimuli are assigned to the same category, whereas contrast effects may emerge when they are assigned to different categories.

In this chapter we build on this previous theorizing as well as on recent research by Barsalou (1987, 1989), Herr et al. (1983), Kahneman and Miller (1986), and Martin and colleagues (Martin, 1986; Martin, Seta, & Crelia, 1990), emphasizing the role of categorization processes in the operation of numerous variables known to elicit assimilation and contrast effects. Clearly, categorization processes have been addressed in previous models, and much of what we have to say is not new. Nevertheless, focusing explicitly on the interplay of cognitive accessibility and the categorization of accessible information provides a heuristically fruitful integrative framework for the conceptualization of assimilation and contrast effects. Moreover, this focus generates numerous hypotheses that have not been tested previously and it helps to specify the conditions under which each of different processes may result in assimilation or contrast effects.

INCLUSION/EXCLUSION AND THE EMERGENCE OF ASSIMILATION AND CONTRAST EFFECTS

Briefly, we assume that individuals who are asked to form a judgment about some target stimulus first need to retrieve some cognitive representation of it. In addition, they need to determine some standard of comparison to evaluate the stimulus. As Kahneman and Miller (1986) suggested, this is frequently a representation of some "alternative" state of reality. Both the representation of *reality*, that is, of the target stimulus, and of its alternatives are, in part, context dependent. Individuals do not retrieve all knowledge that may bear on the stimulus, nor do they retrieve and use all knowledge that may potentially be relevant to constructing its alternative. Rather, they rely on the subset of potentially relevant information that is most accessible at the time of judgment (see Bodenhausen & Wyer, 1987; Higgins, 1989; Higgins & Bargh, 1987, for reviews). Accordingly, their temporary representation of the target stimulus, as well as their construction of a standard of comparison, includes information that is chronically accessible, and hence context independent, as well as information that is only temporarily accessible due to contextual influences (see Barsalou, 1989).

Whether the information that comes to mind results in assimilation or contrast effects depends on how it is *categorized*. However, the specific operation

of the categorization process differs somewhat, depending on whether the information that comes to mind is *subordinate* or *superordinate* to the target category. Suppose, for example, that you are asked to evaluate a political party and a specific politician comes to mind who is a member of that party. In that case, the politician who comes to mind is subordinate to the target category. Conversely, however, you may be asked to evaluate this particular politician and his party membership may come to mind. In that case, information bearing on his party in general would be superordinate to the target category. In both cases, the impact of what comes to mind depends on categorization processes, but the specifics of these categorization processes are somewhat different. Accordingly, we discuss both cases in turn.

Subordinate Context Information and the Evaluation of Superordinate Targets

If the information that comes to mind is subordinate to the target category, it will result in an assimilation effect if it is included in the temporary representation that individuals form of the target category. Thus, thinking of a well-respected member of a political party is likely to result in more favorable evaluations of the party as a whole. This simply reflects that the evaluation of a target is based on the information that is included in the temporary representation that individuals construct of it.

Empirically, however, assimilation effects due to the inclusion of a given piece of information can only be observed if the valence of that information is more extreme than the overall valence of the representation in general. Moreover, the size of the emerging assimilation effect should depend on the amount of competing information: The more information is used in constructing a representation, the smaller should be the impact of any additional piece of information that is included in the representation.

Information that is excluded from the target category, on the other hand, may result in contrast effects, although for different, and not mutually exclusive, reasons. First, suppose that individuals exclude some positively valenced information from their representation of the target category. If so, they will base their judgment on a representation that includes less positive information than would otherwise be the case, resulting in less positive judgments. Empirically, this type of contrast effect, which we call a *subtraction effect*, can only be observed if the valence of the excluded information is more extreme than the overall valence of the representation. Such a subtraction effect does not require any assumption about a change in the standard of comparison used. Moreover, the size of subtraction effects should again depend on the amount of information that is used in constructing a temporary representation: The more information is included in the representation, the smaller should be the impact of subtracting a given piece of information.

The subtraction assumption discussed here parallels Martin's (1986; see also Martin et al., 1990) *reset* assumption, where the emergence of contrast effects is traced to the exclusion of valenced features from the representation that individuals form of an ambiguously described target. However, we do not assume that this is the only process that underlies the emergence of contrast effects, nor would we like to restrict the operation of this process to the encoding of ambiguous information that was investigated in the research by Martin and colleagues.

As a second possibility, information that is excluded from the representation of the target stimulus may come to mind when individuals coifstruct a relevant standard of comparison, and may be used for that purpose. If the valence of this information is more extreme than the valence of other information used in constructing the standard, it results in a more extreme standard of comparison, and hence in more pronounced contrast effects. We assume that the representations of the target category and of the standard are mutually exclusive, and that the same piece of information cannot be used to represent the target and the standard against which it is evaluated. Accordingly, we propose that the exclusion of information from the representation of the target is a necessary prerequisite for its use in constructing a standard.

Moreover, extreme information that is excluded from the target category may be used to anchor the response scale, as suggested by Ostrom and Upshaw's (1968) *perspective theory* and related models, and may result in contrast effects for that reason. As an extended debate in social judgment research indicates, changes in the standard of comparison used and changes in scale anchoring are difficult to distinguish empirically (see Eiser, 1990), and we do not attempt to do so in this chapter.

Whereas the mere subtraction of information should only affect the evaluation of the target category from which this information is excluded, the use of excluded information in constructing a standard of comparison should also affect the evaluation of related stimuli, to which the standard may be relevant. For example, subtracting a highly respected politician from the representation formed of his party should result in less favorable evaluations of this particular party. Using this politician in constructing a relevant standard of comparison, on the other hand, may also affect the evaluation of other parties, or specific politicians, to which this standard may be applicable. Moreover, the size of comparison-based contrast effects should not depend on the amount of information used in constructing the representation of the target, in contrast to the subtraction effects discussed previously. Accordingly, assessments of the generalization of contrast effects across targets, and the presence or absence of set size effects, allow for a differentiation of subtraction versus comparison/anchoring-based contrast effects.

Superordinate Context Information and the Evaluation of Subordinate Targets

Similarly, context information that bears on a superordinate category will result in assimilation effects in the evaluation of a subordinate target if the target is included in the superordinate category. Thus, recalling a politician's party membership will result in more favorable evaluations when we like his party than when we dislike it. This reflects the fact that inclusion of his party membership in our cognitive representation of the target politician adds a positively evaluated feature. Moreover, his inclusion in the superordinate category does allow the derivation of other features, such as his standing on various issues, reflecting that "categorization of an object licenses inductive inferences about that object" (Smith, 1990, p. 35).

Note, however, that the inclusion process discussed here is more complex than in the case of subordinate context information and superordinate targets: We assume that inclusion of a subordinate target in a superordinate category allows the derivation of features from our knowledge about the superordinate category. These features, as well as the category membership, are then included in the temporary representation of the target, which serves as a basis of judgment. Of course, this is a key assumption of many current theories of stereotyping (see, for example, Allport, 1954; Brewer, 1988; Fiske & Neuberg, 1990; Hamilton, 1981), and we will not elaborate on this point beyond noting its compatibility with the general approach offered here.

Excluding the target from the superordinate category, on the other hand, again allows for the emergence of contrast effects. These contrast effects may again reflect that a valenced feature is subtracted from the temporary representation of the target (subtraction effect), or that information bearing on the superordinate category is used in constructing a relevant standard of comparison or scale anchor (*comparison effect*). As discussed previously, subtraction-based contrast effects should be limited to the evaluation of the specific target, whereas comparison-based contrast effects may generalize to other targets for whom the standard of comparison may be relevant.

Summary

In summary, the key assumptions of the present model hold that the inclusion of a given piece of information in the temporary representation of the target category is a necessary prerequisite for the emergence of an assimilation effect, whereas the exclusion of a given piece of information from that representation is a necessary prerequisite for the emergence of contrast effects. Whether

the emerging contrast effect is limited to the evaluation of the target stimulus, or generalizes to related stimuli, depends on whether the excluded information is merely subtracted from the data base used to evaluate the target, or is used in constructing a standard of comparison, or a scale anchor, which may be applicable to related stimuli as well. In addition, we assume that the default operation is to include easily accessible information in the representation of the target category and that exclusion needs to be triggered by salient features of the task or its context, an issue to which we will return later.

The general inclusion/exclusion approach offered here provides a heuristically fruitful framework for the conceptualization of many variables that are known to moderate the emergence of assimilation and contrast effects. Before we review some of these variables in more detail, however, we report on two studies in which the inclusion or exclusion of context information was directly manipulated, using these studies to elaborate on our basic assumptions.

Direct Manipulations of Categorization: The Varying Impact of a Politician On Evaluations of His Party

Suppose that you are asked to provide a general evaluation of the politicians of the Christian Democratic Party of the Federal Republic of Germany. To do so, you may either retrieve a previously formed judgment from memory, or you may form a judgment on the spot (Strack & Martin, 1987). If a previously formed judgment can be retrieved, the current context is unlikely to exert much influence. Hence, we will not address this special case. If you need to form a judgment on the spot, you presumably need to retrieve some representation of the politicians of the Christian Democratic Party. Assuming some basic familiarity with German politics, this representation is likely to include some chronically accessible information, for example, that it is a conservative party, and that Chancellor Kohl is one of its prominent members. In addition to such context-independent information, the representation may include some information that only comes to mind under specific circumstances, for example, because it was needed to answer a preceding question (Schwarz & Strack, 1991a; Strack & Martin, 1987). Under which conditions this context-dependent information results in assimilation or contrast effects on your general evaluation of politicians of the Christian Democratic Party is of key interest in the present chapter.

One of the most highly regarded members of the Christian Democratic Party is Richard von Weizsäcker, who currently serves as president of the Federal Republic of Germany. He has been a member of this party for several decades, but the office of president requires that he no longer actively participate in party politics. The president, as the representative figurehead of the Federal Republic of Germany, is supposed to take a neutral stand on party issues, much as

the Queen in the United Kingdom. This rendered him particularly suitable for the present experiment, in which we exploited this ambiguity of his status as a party member (Schwarz & Bless, 1990, Experiment 1).

Specifically, we asked subjects a number of political knowledge questions. In one condition, they were asked to recall the party of which "Richard von Weizsäcker has been a member for more than 20 years." Answering "Christian Democratic Party" should make it more likely that the highly respected Richard von Weizsäcker is included in the temporary representation that subjects form of *politicians of the Christian Democratic Party* when they are later asked to evaluate this group. Accordingly, it was expected that they would evaluate the Christian Democratic Party more favorably when they were asked the party membership question than when they were not.

The data supported this hypothesis, as shown in the first row of Table 8.1. Specifically, including Richard von Weizsäcker in the category increased the evaluation of Christian Democratic politicians as a group, relative to a condition in which no question about Richard von Weizsäcker was asked.

In another condition of the same study, however, subjects were asked which office Richard von Weizsäcker holds "that sets him aside from party politics." Answering this question should exclude Richard von Weizsäcker from the category of Christian Democratic Party politicians. If so, it was expected to result in lower evaluations of Christian Democratic politicians in general. This was again the case, as shown in the first row of Table 8.1.

So far, these findings indicate that asking a preceding question increased the cognitive accessibility of the information that was used to answer it. This, in turn, increased the likelihood that this information came to mind when respondents were later asked another question to which it was relevant. How this easily accessible information affected the judgment, however, depended on whether it was included in the temporary representation that subjects formed of the target category or not. If Richard von Weizsäcker was assigned to the target category, that is, the Christian Democrats in the preceding example, he was included in the data base considered in making the general judgment. This

TABLE 8.1
Evaluation of Political Parties as a Function of the Inclusion or Exclusion of a Highly Respected Politician

	Preceding Question About Richard von Weizsäcker		
Target	*Party Membership*	*None*	*Presidency*
Christian Democrats	6.5	5.2	3.4
Social Democrats	6.3	6.3	6.2

Note: n = 19 to 25 per condition. 1 = unfavorable; 11 = very favorable opinion about politicians of the respective party in general. Adapted from Schwarz and Bless (1990, Experment 1).

resulted in an assimilation effect, relative to a control group in which no question about Richard von Weizsäcker was asked.

If Richard von Weizsäcker was excluded from the target category, however, a contrast effect emerged, again relative to a condition in which no question about Richard von Weizsäcker was asked. This may reflect either of two processes. On the one hand, Richard von Weizsäcker and his party membership may have been chronically accessible for some subjects who were not asked a question about him. If so, the assimilation effect would reflect that the party membership question increased the number of subjects who included Richard von Weizsäcker in their temporary representation, whereas the presidency question decreased the number of subjects who did so. In that case, the obtained contrast effect would reflect the subtraction of Richard von Weizsäcker from the data base used. On the other hand, subjects may not only have excluded Richard von Weizsäcker from their representation of politicians of the Christian Democratic Party, but may also have used him in constructing a standard of comparison, or a scale anchor, against which politicians of the Christian Democratic Party in general were evaluated.

We can distinguish both possibilities by assessing the generalization of the obtained contrast effect across different stimuli to which the standard of comparison, or the scale anchor, may be relevant. If the obtained contrast effect solely reflects the exclusion of Richard von Weizsäcker from the representation of the target category *politicians of the Christian Democratic Party*, the presidency question should only affect the evaluation of this party. If respondents used Richard von Weizsäcker in constructing a standard of comparison or a relevant scale anchor, on the other hand, the obtained contrast effect should generalize to the evaluation of politicians of other parties, such as the Social Democratic Party, as well. In this case, we may expect contrast effects to emerge in response to both questions about Richard von Weizsäcker, because the presidency as well as the party membership question should bring this respected politician to mind without allowing his inclusion in subjects' temporary representation of the target category *politicians of the Social Democratic Party*, of which he has never been a member.

To explore this possibility, other subjects of the aforementioned study (Schwarz & Bless, 1990, Experiment 1) were exposed to the same questions but were asked to provide a general evaluation of politicians of the Social Democratic Party. As shown in the second row of Table 8.1, neither of the questions about Richard von Weizsäcker affected subjects' evaluations of politicians of the Social Democratic Party. This suggests that the contrast effect obtained on the evaluation of Christian Democratic politicians reflected a subtraction effect, rather than a change in the standard of comparison, or scale anchor, used.

In summary, directly manipulating the categorization of Richard von Weizsäcker by different knowledge questions provided clear support for the emergence of assimilation effects as a function of his inclusion in respondents'

representations of the target category, and for the emergence of a subtraction-based contrast effect as a function of his exclusion from the target category.

The Impact of Category Width: Scandals and Trust in Politicians

If the emergence of assimilation and contrast effects is determined by subjects' categorizations of highly accessible information, as the preceding experiment suggests, all variables that influence the inclusion or exclusion of information from a target category may be expected to moderate the impact of highly accessible information. Whereas we manipulated subjects' categorizations of context information in the previous study by means of direct questions, a particularly relevant variable in social judgment research may be the *width* of the target category. In principle, a given piece of information should be more likely to be included in a category, the wider the respective category is, but more likely to be excluded from the category, the narrower it is. The next study bears on this assumption and extends the inclusion/exclusion logic by demonstrating changes in the standard of comparison or scale anchor, as indicated by a generalization of contrast effects across different targets.

Suppose, for example, that subjects are induced to think about politicians who were involved in a specific political scandal, and are subsequently asked to evaluate the trustworthiness of politicians in general. According to the present model, the politicians involved in the scandal are members of the superordinate category *politicians* and are therefore likely to be included in subjects' temporary representations of that category. If so, subjects' evaluations of the trustworthiness of politicians in general should decrease, reflecting an assimilation effect.

Suppose, however, that subjects are not asked to evaluate the trustworthiness of politicians in general, but the trustworthiness of a specific politician, Mr. Joe Doe, who was not involved in the scandal. We may assume that in evaluating a specific person, this person makes up a category by him or herself (cf. Wyer & Srull, 1989). If so, the politicians who were involved in the scandal should not be included in subjects' temporary representations of Joe Doe. Nevertheless, the scandal-ridden politicians should be highly accessible in memory and may come to mind when subjects are asked to evaluate Joe Doe. If so, they may be used in constructing a standard against which Joe Doe is evaluated, or they may be used to anchor the response scale. In either case, Joe Doe should be evaluated as particularly trustworthy by comparison, reflecting a contrast effect. Thus, the present model predicts that thinking about politicians who were involved in a scandal may decrease judgments of the trustworthiness of politicians in general, but may increase judgments of the trustworthiness of specific exemplars of the category, provided that they were not involved in the scandal.

To test this implication of the inclusion/exclusion model, we (Schwarz & Bless,

in press) asked subjects to recall the names of some politicians who were involved in a recent political scandal in West Germany, either before or after they answered the dependent variables. The scandal used in this study was the so-called "Barschel Scandal," which bears some resemblance to the Watergate scandal in the United States. All subjects were able to provide the names of at least two participants. Subsequently, some subjects were asked to evaluate the trustworthiness of politicians in the Federal Republic of Germany in general. As shown in the first row of Table 8.2, thinking about the Barschel scandal resulted in decreased judgments of the trustworthiness of German politicians in general. This assimilation effect presumably reflects that subjects included the politicians who were involved in the scandal in their representation of German politicians in general.

Other subjects, however, were asked to evaluate the trustworthiness of three specific politicians, whom pretests had shown to be not particularly trustworthy to begin with, although they were not involved in the scandal under study. As shown in the second row of Table 8.2, thinking about the Barschel scandal increased judgments of trustworthiness of these specific politicians. This contrast effect presumably reflects that subjects used the easily accessible politicians who were involved in the scandal in constructing a standard of comparison or a relevant scale anchor.

Note that this contrast effect cannot be accounted for on the basis of a mere subtraction process. The information that was primed by the scandal questions was presumably never part of the subjects' representations of the specific politicians they had to evaluate. Hence, the contrast effect obtained here presumably reflects the use of the recalled politicians in constructing a relevant standard of comparison or scale anchor. This information could only be used in constructing the standard, however, when it was not perceived to bear on the respective target category in the first place. As a result, we found that naming politicians who were involved in a scandal resulted in assimilation effects on the evaluation of a wide category that allowed the inclusion of these politicians. However, the same priming task resulted in contrast effects on the evaluation of specific politicians, reflecting that the primed politicians could not be included in the specific

TABLE 8.2
Evaluation of the Trustworthiness of Politicians in General and of Three Exemplars as a Function of Thinking About a Scandal

	Scandal Question	
Target	*Not Asked*	*Asked*
Politicians in General	5.0	3.4
Specific Exemplars	4.9	5.6

Note: $n = 8$ per condition. 1 = not at all trustworthy; 11 = very trustworthy. Adapted from Schwarz and Bless (in press).

categories made up by those persons, and were hence available for the construction of a relevant standard or anchor.

These findings indicate that the same information may affect related judgments in opposite directions, depending on whether the respective target category invites the inclusion or the exclusion of the information that comes to mind. Accordingly, it comes as no surprise that political scandals are typically accompanied by attempts to channel the public's categorization of scandal-related information (see Ebbighausen & Neckel, 1989, for discussions of scandal management). To the extent that individual politicians, or groups of politicians, can dissociate themselves from the scandal, they may actually benefit from the misdemeanor of their peers, although the impact on the perception of the profession as a whole is likely to be negative.

Subtraction Versus Comparison: The Role of Salient Dimensions

So far, we have seen some evidence for the operation of subtraction as well as comparison or anchoring processes under exclusion conditions. Under which conditions, however, is each of these processes likely to operate? We propose that the mere accessibility of an extreme stimulus is unlikely to elicit comparison or anchoring processes, unless the stimulus brings the relevant dimension of judgment to mind. Accordingly, thinking about some stimulus only influences the evaluation of subsequent stimuli by means of comparison or anchoring processes if the stimulus is linked to the dimension of judgment. If the stimulus is thought about with regard to some other dimension, it is unlikely to be used as a standard or scale anchor. With regard to the preceding studies, this suggests that thinking about a political scandal was likely to bring the dimension of trustworthiness to mind. On the other hand, thinking about Richard von Weizsäcker's party membership or office may have been less likely to bring the evaluative dimension to mind that was relevant to subsequent judgments of the Social Democrats.

In line with this assumption, we observed in one of our studies that comparison or anchoring effects only emerged when highly accessible context-dependent information was linked to the dimension of judgment (Schwarz, Münkel, & Hippler, 1990). Specifically, we asked subjects to rate how "typically German" a number of different beverages are, namely wine, coffee, and milk. Before they made this judgment, some subjects were asked to estimate the caloric content of a glass of vodka, or of a glass of beer, respectively. Other subjects, however, were asked to estimate how frequently Germans drink vodka or beer.

Both questions should increase the accessibility of vodka or beer in memory. However, only the frequency-of-consumption question is related to the typicality dimension, whereas the caloric content question is not. If it is sufficient that an extreme stimulus comes to mind, both questions should result in contrast

effects on subsequent typicality ratings. On the other hand, if the emergence of comparison or anchoring effects requires that the extreme stimulus is linked to the relevant judgmental dimension, contrast effects should only emerge when subjects estimate the frequency of consumption, but not when they estimate the caloric content.

Empirically, this was the case. Table 8.3 shows the mean ratings of the "Germanicness" of wine, coffee, and milk as a function of the preceding questions. When subjects estimated the frequency of consumption, they rated all beverages as more typically German after thinking about vodka than after thinking about beer. Estimating the caloric content of vodka or beer, on the other hand, did not affect their ratings. Accordingly, we concluded that the emergence of comparison or anchoring effects requires that the context-dependent information be linked to the relevant dimension of judgment. Otherwise, it may not be considered when individuals construct a standard of comparison or select a scale anchor.

This suggests that we may only see contrast effects that generalize across various target categories when respondents think about the excluded information with regard to the respective dimension of judgment. If the excluded information is thought about with regard to some other dimension, it may still result in contrast effects, but only by means of a subtraction process. Accordingly, the contrast effects that emerge under this condition should be limited to the evaluation of the category from which the information was excluded in the first place, as was the case in the Weizsäcker study. Such a subtraction effect could not be observed in the present study, however, because the extreme beverages were not part of the target categories to begin with. Most obviously, more research is needed to test these conjectures.

VARIABLES THAT DETERMINE INCLUSION AND EXCLUSION: CONJECTURES AND FINDINGS

If the emergence of assimilation and contrast effects is a function of categorization processes, then any variable that influences categorization can presumably elicit assimilation or contrast effects. In the following sections we review the

TABLE 8.3
Contrast Effects as a Function of the Dimension Tapped by Preceding Questions

	Context Stimulus	
Preceding Question	*Vodka*	*Beer*
Consumption	5.4	4.4
Caloric Content	4.4	4.5

Note: n = 25 to 27 per cell; 9 = "very typical." The mean of ratings of three beverages (milk, wine, and coffee) is given. Adapted from Schwarz, Münkel, and Hippler (1990).

operation of a number of different variables that have been shown to moderate the emergence of assimilation and contrast effects, emphasizing their impact on inclusion/exclusion processes.

Representativeness

One of the key variables that determines the inclusion or exclusion of information is the perceived representativeness of the information for the target category. Information that is not representative for the target category is likely to be excluded, and is therefore likely to result in contrast effects. A number of diverse studies bear on this prediction and we review only a few of them.

Temporal Distance of Events. Strack, Schwarz, and Gschneidinger (1985, Experiment 1) investigated the emergence of assimilation and contrast effects on judgments of current life-satisfaction as a function of the representativeness of specific life-events for the target category *my life now*. (See also Tversky & Griffin, 1991, for conceptual replications, and Schwarz & Strack, 1991b for a general discussion of life-satisfaction judgments.) In the Strack et al. study, some subjects were asked to think about their present life and to write down three events that were either particularly positive and pleasant or particularly negative and unpleasant. This was done under the pretext of collecting life-events for a life-event inventory, and the dependent variables, among them *happiness* and *satisfaction*, were said to be being assessed in order to "find the best response scales" for that instrument. As shown in Table 8.4, subjects who had previously been induced to think about positive aspects of their present life described themselves as happier and more satisfied with their life-as-a-whole than subjects who had been induced to think about negative aspects. Presumably, this assimilation effect reflects that subjects included the recent life-events that they thought about in their temporary representation of the target category *my life now*.

Other subjects, however, had to recall events that had occurred several years ago. These events are no longer representative for one's *life now*, but bear

TABLE 8.4
Subjective Well-Being: The Impact of Valence of Event and Extendure

	Valence of Event	
Extendure	*Positive*	*Negative*
Present	8.9	7.1
Past	7.5	8.5

Note: Mean score of happiness and satisfaction questions, range is 1 to 11, with higher values indicating reports of higher well-being. Adapted from Strack, Schwarz, and Gschneidinger (1985, Experiment 1).

on a previous period of one's life. Accordingly, they should be excluded from the target category *my life now*, and may serve as standards of comparison, resulting in contrast effects on current life-satisfaction. The data supported this prediction. Subjects who thought about negative past events reported higher current well-being than respondents who thought about positive past events, reversing the previously obtained effect of recent events.

These findings are consistent with recent research in autobiographical memory that suggests that life-events are organized in terms of life-time periods, often referred to as *extendures* (see Cohen, 1989, for a review). If the recalled event is included in the representation of the extendure that is to be evaluated, it results in assimilation effects. If it is excluded from this extendure, it is likely to trigger contrast effects. Accordingly, we may expect that future research into the construction of autobiographical extendures, and the variables that determine the boundaries of extendures, and the variables that determine the boundaries of extendures, will bear directly on the impact of previous life-events on judgments of current well-being (see Clark & Collins, in press, for a related discussion).

Consistent with the assumption that the impact of life-events on judgments of well-being depends on the boundaries used in constructing autobiographical extendures, subsequent research by Strack, Schwarz, and Nebel (1987) demonstrated that it is not the temporal distance of the event per se that moderates the use of accessible information about one's life, but rather the subjective perception of whether the event one thinks about pertains to one's current conditions of living or to a different extendure of one's life. Specifically, students were asked to describe either a positive or a negative event that they expected to occur in "five years from now." For half of the sample, a major role transition was emphasized that would occur in the meantime, namely leaving university and entering the job market. As major role transitions of this type are known to mark the boundaries of autobiographical extendures (Cohen, 1989), this manipulation should increase the probability that respondents assign the expected event to a different phase of their life. Accordingly, they should be likely to use the expected event in constructing a standard of comparison. The results supported this reasoning. When the role transition was not emphasized, subjects reported higher happiness and life-satisfaction when they had to describe positive rather than negative expectations. When the role transition *was* emphasized, this pattern was reversed, and subjects reported higher well-being after thinking about negative rather than positive future expectations. Again, these findings suggest that easily accessible information elicits assimilation effects if it is included in the temporary representation of the target category, but results in contrast effects if it is excluded from that category.

Feature Overlap. In a well-known study, Herr, Sherman, and Fazio (1983) asked subjects to rate ambiguous stimuli (e.g., a fictitious animal) in the context of moderate or extreme related stimuli. They observed assimilation effects

in the ratings of ambiguous stimuli when they were presented in the context of moderate ones, but contrast effects when they were presented in the context of extreme ones. Later research by Herr (1986), using a social category, replicated these findings. Herr (1986) concluded that "to the extent that a comparison of features of the activated category and the target stimulus results in matching or overlap, a judgment of category membership should occur" (p. 1107), eliciting an assimilation effect. On the other hand, if the overlap is insufficient, thus constituting an exclusion relationship, "the priming exemplars serve as standards of comparison" (Herr, 1986, p. 1107), resulting in a contrast effect.

In a related vein, Seta, Martin, and Capehart (1979) observed assimilation effects in attractiveness ratings of two target persons, who showed differential agreement with the subject's attitudes, when the targets shared a salient feature (namely, their college major), but contrast effects when they did not, in line with the predictions of Tajfel's (1959) accentuation theory. They concluded that the probability of obtaining an assimilation effect "is increased as the perceived commonality between two individuals is increased. Further, the probability of obtaining a contrast effect is increased as the perceived commonality between two individuals is decreased" (Seta et al., 1979, p. 406), reflecting the impact of category membership (i.e., inclusion/exclusion) decisions.

Unitary Versus Composite Categories. Following Sherif and Hovland's (1961) hypothesis that the emergence of assimilation and contrast effects depends on the distance between a behavior and its referent distribution, Hilton and von Hippel (1990, Experiment 1) induced different expectations about the distribution of pathological behaviors at different hospitals. In line with research by Manis and colleagues (e.g., Manis & Paskewitz, 1984; Manis, Paskewitz, & Cotler, 1986), they observed that ambiguous behaviors were assimilated to the stereotype of the respective hospital when they were consistent with expectations, and hence representative of the behaviors associated with patients of that hospital. However the ambiguous behaviors were contrasted to the stereotype when they were inconsistent with expectations. Thus, an assimilation effect emerged when the target behavior could be included in the superordinate hospital category, whereas a contrast effect emerged when the target behavior was excluded from that category.

In a second experiment, Hilton and von Hippel (1990, Experiment 2) directly manipulated subjects' opportunities to recategorize a target behavior that was inconsistent with expectations. Specifically, they attributed all behaviors either to a random group of people whose names began with a letter in the same half of the alphabet, to a family, or to an individual, assuming that subjects would expect most consistency among the behaviors of an individual and least consistency among the behaviors shown by a random group of people. As expected, ambiguous behaviors were assimilated to the induced expectations when

an individual was the alleged source of all behaviors, but were contrasted to expectations when a random group was given as the alleged source. Apparently, attributing all behaviors to the same individual ensured that the ambiguous behavior was included in the category constituted by the unambiguous behaviors, resulting in an assimilation effect. Attributing the behaviors to a diverse group of people, on the other hand, allowed the exclusion of the ambiguous behaviors, resulting in a contrast effect. As the authors note: "To the extent that recategorization is a viable alternative, the pressure to assimilate unexpected behaviors should diminish" (Hilton & von Hippel, 1990, p. 445).

In more general terms, it may be assumed that unitary categories (such as specific individuals) are less likely to allow for the inclusion of discrepant information than composite categories (such as random groups of individuals), reflecting assumptions about the higher degree of variation that may be observed in the latter case. If so, judgments of unitary target categories should be more likely to show contrast effects, whereas composite categories should be more likely to show assimilation effects.

In summary, the studies reviewed in this section indicate that the perceived representativeness of a given piece of information for the respective target category determines its inclusion in, or exclusion from, that category, and hence the emergence of assimilation or contrast effects.

Category Width

Closely related to the impact of perceived representativeness is the issue of category width. The wider a category is, the more likely it becomes that a given piece of information may be included. The study on the impact of political scandals on judgments of trustworthiness (Schwarz & Bless, 1990), reviewed previously, supported this assumption. For the domain of person perception, this suggests, for example, that information about a specific group member is likely to result in assimilation effects on the evaluation of the group in general, reflecting the inclusion relationship constituted by group membership. Such an assimilation effect should not be obtained, on the other hand, if the individual member is so distinct from the group that he or she is excluded from the category, or if the individual member is assigned to a different category (see Rothbart & John, 1985), as discussed previously in the context of the Herr et al. (1983) and Hilton and von Hippel (1990) studies.

On the other hand, thinking about an individual should be likely to result in contrast effects on the evaluation of other individuals, reflecting that an individual person is likely to make up a category by him- or herself, constituting an exclusion relationship. Assimilation effects would only be predicted if some higher-order category is identified to which both individuals can be assigned, and if this higher-order category serves as a basis of judgment (see Fiske & Neuberg, 1990).

According to the present model, any variable that influences category width should also influence the emergence of assimilation and contrast effects. Whereas the preceding examples reflected the nature of the respective category itself, category width may also be influenced by individual difference variables, such as the degree of differentiation at which the respective content domain is represented in the judge's knowledge system. Theoretically, more differentiated knowledge systems are composed of a larger set of more specific categories than less differentiated knowledge systems. For example, Rosch, Mervis, Gray, Johnson, and Boes-Braem (1976) observed that experts identified objects at a lower level of abstraction than novices, reflecting a shift in the level of basic categories. Whereas a novice may, for example, identify all airplanes as *airplanes*, an airplane mechanic in their study distinguished between many types of different airplanes, reflecting the use of more, and more narrowly defined, categories in the domain of his expertise. The use of more specific categories, however, implies that a given piece of information may only be included in the representation of one specific category, but may be excluded from many others. Accordingly, we may expect contrast effects to be more likely to emerge in judgments made by experts than in judgments made by novices.

Another variable that is likely to influence category width is an individual's affective state at the time of judgment. In several studies, individuals in an elated mood were found to use wider categories than individuals in a depressed mood (see Isen, 1987; Schwarz, 1990, for reviews). For example, items that were not generally considered good exemplars of a category (e.g., *cane* as a member of the category *clothing*) were more likely to be assigned to that category by individuals in an elated rather than a nonmanipulated mood (Isen & Daubman, 1984). This suggests that the emergence of assimilation effects may be more likely under elated moods, whereas the emergence of contrast effects may be more likely under depressed moods. To our knowledge, data bearing on the impact of moods and expert status are not yet available.

Presentation and Judgment Order

So far, we have considered variables that are inherent to the presented information, such as the primed information's representativeness for the target category or the perceived inclusiveness of the target category itself. However, the categorization of stimuli may also be affected by more fortuitous aspects of the experimental procedures used, such as the order in which stimuli are presented or judgments are assessed.

For example, Wedell, Parducci, and Geiselman (1987) asked subjects to rate the attractiveness of faces that were either presented successively or in pairs. When the faces were presented successively, the same face was rated more favorably when presented in the context of less attractive faces, reflecting a contrast effect. When the faces were presented in pairs, however, the same

face was rated less favorably when presented simultaneously with a less attractive face, reflecting an assimilation effect. The authors traced this assimilation effect to "a failure to separate the individual stimulus from other stimuli that are simultaneously present" (Wedell et al., 1987, p. 231). Apparently, the use of a successive or simultaneous presentation format influenced the categorization of the stimuli, mediating the emergence of assimilation and contrast effects.

In a similar vein, Martin and Seta (1983) observed the emergence of assimilation and contrast effects in an experiment conducted in the context of Byrne's (1971) similarity-attraction paradigm. Specifically, subjects learned that one target person agreed with them on three issues, whereas a second target person agreed with them on six issues. Paralleling the Wedell et al. (1987) findings, an assimilation effect in subjects' evaluations of the target persons emerged when they provided their ratings after information about *both* targets had been presented, whereas a contrast effect emerged when the first target was rated before information about the second target was presented. Martin and Seta concluded that the timing of the judgment influenced the *perceived relatedness* of the stimuli, moderating the emergence of assimilation and contrast effects.

In combination, these studies illustrate that assimilation effects are likely to be obtained when the stimuli are perceived as a unit, whereas contrast effects are likely to emerge when they are perceived as distinct entities (Martin & Seta, 1983; Seta et al., 1979), again reflecting the impact of categorization processes.

Deliberate Exclusion

The variables reviewed so far were likely to influence subjects' assessments of whether the primed information belonged to the target category or not. Sometimes, however, subjects do not *use* information that comes to mind despite the fact that it seems to belong to the target category. This is the case when individuals are aware of the potential influence of the primes, or when conversational norms prohibit the use of information that has already been provided. In both cases, the easily accessible information is excluded, resulting in contrast effects.

Awareness of External Influences. As Martin and Clark (1990) noted in a review of the priming literature, the usually observed assimilation effect of concept priming on the interpretation of ambiguous information may be "most likely to occur when subjects are unaware of the priming stimuli or, at least, are unaware that their exposure to these stimuli may influence their impression of the target person" (p. 274). For example, Lombardi, Higgins, and Bargh (1987) reported that trait priming only resulted in assimilation effects when subjects were not aware of the priming episode. When subjects were aware of the primes, as assessed by their ability to recall them, contrast effects were observed. In a related study, Strack, Schwarz, Bless, Kübler, and Wänke (1990)

observed that reminding subjects of the priming episode reversed the usually obtained assimilation effect, resulting in contrast.

As Higgins (1989) noted, "One interpretation of these findings is that subjects who recalled the priming events used the events to form a standard that subsequently functioned as a reference point for judging the stimulus person" (p. 92). This interpretation is nicely compatible with the present approach. Presumably, being aware that a trait comes to mind because it was introduced as part of another task prohibits that this trait is used to characterize the target person. Nevertheless, the behaviors that served as primes are highly accessible and may be used in constructing a standard of comparison or scale anchor.

As an alternative account, Martin et al. (1990; see also Martin, 1986) suggested that individuals may try to avoid an undue influence of the primed information by using other concepts that are applicable to the ambiguous information, yet distinct in their implications. In our reading, this account predicts the absence of assimilation effects, relative to a no-priming control group, when subjects are aware of the primes. However, it does not necessarily predict a contrast effect relative to a no-priming control group, unless one assumes that the concepts that subjects turn to are not only distinct, but opposite in implications to the primed concepts. Unfortunately, no-priming conditions were not included in the Martin et al. (1990) studies, which compared the impact of positive and negative primes under conditions of different processing motivation or processing load (an issue to which we will return later). More interestingly, the Higgins (1989) and Martin et al. (1990) accounts make differential predictions for evaluations based on unambiguous descriptions. If contrast effects are driven by the use of distinct concepts at the encoding stage, as suggested by Martin and colleagues, they should be restricted to evaluations of ambiguously described targets, which allow the application of different concepts. If contrast effects are due to the use of primes in the construction of a standard, as Higgins (1989) suggested, they should generalize to unambiguous targets as well, provided that the standard is applicable. To our knowledge, data bearing on these differential predictions are not yet available.

The Impact of Conversational Norms. Another variable that may prompt individuals to deliberately exclude easily accessible information is the operation of conversational norms that prohibit redundancy. Specifically, one of the principles that govern the conduct of conversation in everyday life (Grice, 1975) requests speakers to make their contribution just as informative as is required for the purpose of the conversation, but not more informative than is required. In particular, speakers are not supposed to be redundant or provide information that the respondent already has. In psycholinguistics, this principle, known as the *given-new contract*, emphasizes that speakers should provide new information rather than information that has already been given (Clark, 1985; Haviland & Clark, 1974). As Strack and Martin (1987; see also Strack & Schwarz, in

press) pointed out, following related suggestions by Bradburn (1982) and Tourangeau (1984), this principle may be applied to the emergence of question order effects in psychological measurement. Specifically, they suggested that respondents may deliberately disregard information that they have already provided in response to a previous question, when answering a subsequent one. The next study illustrates how this conversational process mediates the emergence of assimilation and contrast effects by determining the inclusion or exclusion of previously provided information (see also Strack, Martin, & Schwarz, 1988; Strack, Schwarz, & Wänke, 1991).

In this study (Schwarz, Strack, & Mai, 1991), we asked a sample of German adults to report their marital satisfaction as well as their general life-satisfaction. As expected, the correlation between ratings of "happiness with marriage" and "happiness with life-as-a-whole" depended on the order in which both questions were asked, replicating previous findings by Strack et al. (1988). If the general happiness question preceded the marital satisfaction question, both questions were moderately correlated, $r = .32$. If the question order was reversed, this correlation increased to $r = .67$. This reflects that respondents included information that they had used to answer the marital satisfaction question in the temporary representation on which they based their evaluation of their life in general, resulting in an assimilation effect. Accordingly, happily married respondents reported higher, and unhappily married respondents lower, mean general life-satisfaction when the marital satisfaction preceded the general one than when it did not.

Not so, however, when both questions were explicitly placed in the same conversational context, thus evoking the norm of non-redundancy. This was accomplished by a joint lead-in to both questions that read,

> Now we would like to learn about two areas of life that may be important for people's overall well-being:
> a) happiness with marriage
> b) happiness with life in general.

Subsequently, both happiness questions were asked in the specific-general order. In that case, the correlation of both measures dropped from the previously obtained $r = .67$, under this order condition, to $r = .18$, again replicating previous findings by Strack et al. (1988). This suggests that respondents deliberately ignored information that they had already provided in response to a specific question when making a subsequent general judgment, despite the fact that it was easily accessible in memory. This exclusion process presumably reflects that the specific and the general questions were explicitly assigned to the same conversational context, thus evoking the application of conversational norms that prohibit redundancy. In that case, respondents apparently interpreted the general question as if it referred to aspects of their life that they had not yet reported

on. In line with this interpretation, a condition in which respondents were explicitly asked how satisfied they were with "other aspects" of their life, "aside from their relationship," yielded a nearly identical correlation of $r = .20$.

More importantly, however, respondents who were induced to disregard their marriage in evaluating their life-as-a-whole reported higher life-satisfaction when they were unhappily married, and lower life-satisfaction when they were happily married, than respondents who were not induced to exclude this information. Thus, contrast effects were obtained when conversational norms elicited the exclusion of the primed information, whereas assimilation effects were obtained when the activated information was included, as discussed previously.

In a related study, Ottati, Riggle, Wyer, Schwarz, and Kuklinski (1989) asked respondents to report their agreement with general and specific political statements. For example, a general statement would read, "Citizens should have the right to speak freely in public." In one condition, this general statement was preceded by a specific statement that pertained to a favorable or unfavorable group. For example, "The Parent–Teachers Association (or the Ku Klux Klan, respectively) should have the right to speak freely in public."

As expected, respondents expressed a more favorable attitude toward the general statement if it was preceded by a specific one that pertained to a favorable, rather than to an unfavorable, group. However, this assimilation effect was only obtained when the items were separated by eight filler items. If the items were presented immediately adjacent to one another, a contrast effect emerged. The latter finding presumably reflects the exclusion of the primed information as a function of conversational norms and/or awareness of the priming episode.

In addition to illustrating the operation of inclusion and exclusion processes as a function of conversational norms and awareness of the priming episode, the findings reviewed in this section draw attention the frequent neglect of conversational principles in social cognition research. According to mainstream social cognition theorizing (see Higgins & Bargh, 1987, for a review), the use of information is solely determined by its cognitive accessibility and its applicability to the judgment at hand. As the aforementioned findings illustrate, however, easily accessible information that is clearly applicable to the judgment at hand may not be used in making a judgment if its repeated use would violate the conversational norm of non-redundancy (see Martin & Clark, 1990; Strack et al., 1988; Strack & Schwarz, in press, for more detailed discussions). Thus, social cognition research needs to pay attention to the social context in which a judgment is made, in addition to the determinants of accessibility and applicability (see the contributions in Schwarz & Strack, 1991c).

THE INCLUSION/EXCLUSION MODEL

In summary, the inclusion/exclusion model assumes that assimilation and contrast effects are a function of categorization processes, as shown in Fig. 8.1.

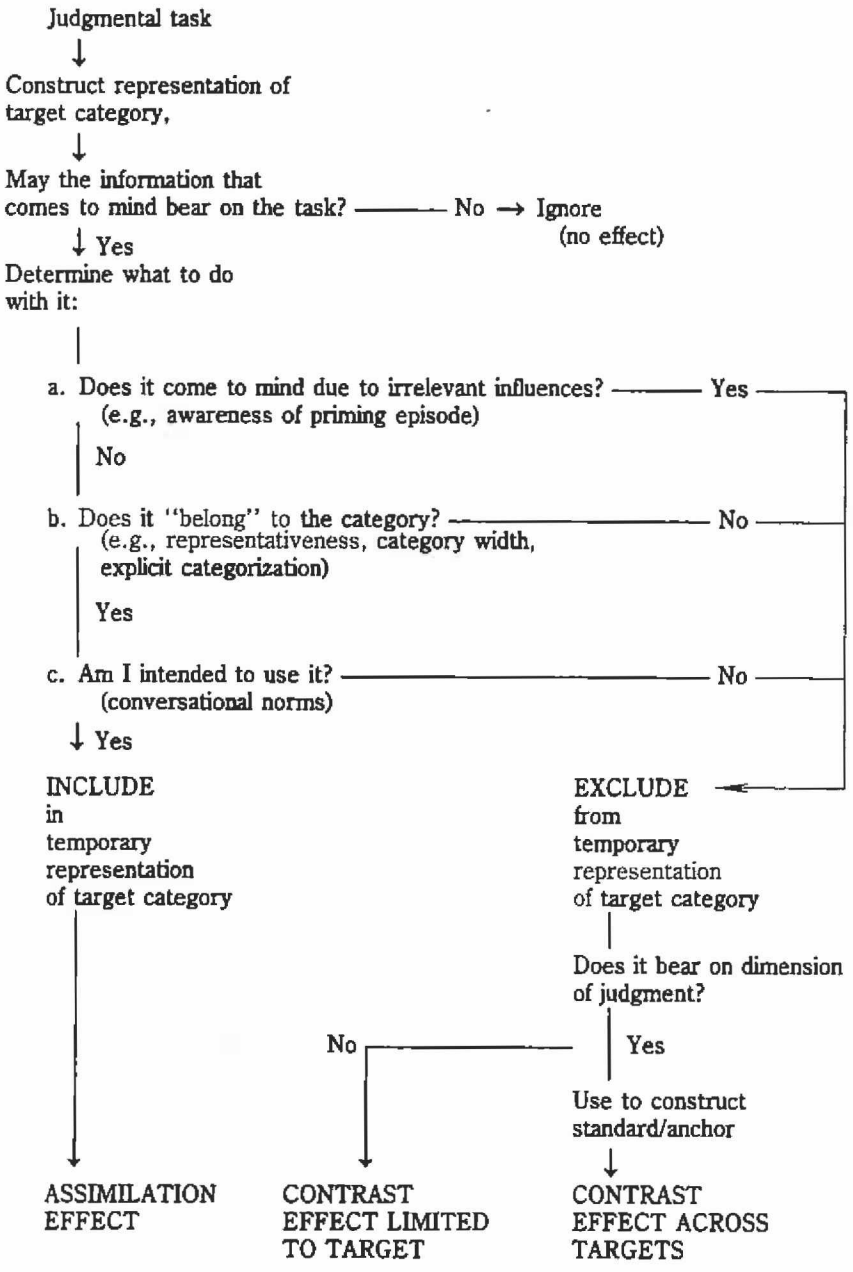

FIG. 8.1. Inclusion/exclusion and the emergence of assimilation and contrast effects.

When asked to make a judgment, the individual has to retrieve information that bears on the task. If information comes to mind that is clearly unrelated to the task, it is ignored and does not influence the judgment. Information that appears as potentially relevant to the task may result in assimilation or in contrast effects, depending on whether it is included in, or excluded from, the temporary representation that the individual forms of the target category. We assume that the default operation is to include apparently relevant information, whereas exclusion operations need to be triggered by salient features of the judgmental task or of the communicative context in which the judgment is made. These salient features relate to three general decisions that need to be made with regard to the information that comes to mind:

1. The individual needs to decide if the information that comes to mind bears on the target category or not. Variables such as the width of the target category or the perceived representativeness of the primed information will determine categorization at this stage.
2. The individual needs to determine if the information that comes to mind reflects the impact of some irrelevant factor, such as a priming task. If so, the information will be disregarded, constituting an exclusion relationship.
3. Conversational norms may prohibit the repeated use of information that has already been provided earlier, even if that information does seem generally relevant to the judgment at hand.

In general, assimilation effects are predicted to emerge whenever the information that comes to mind is included in the temporary representation that respondents form of the target category. Empirically, however, this can only be observed if the context-dependent information is more extreme than the context-independent information. In addition, the size of the assimilation effect should be an inverse function of the amount of competing information: The more information is represented in the construction of the target category, the smaller should be the impact on including any additional piece of information.

Conversely, contrast effects are predicted to emerge whenever the information that comes to mind is excluded from the target category. This may either reflect the operation of a subtraction process, or the operation of a change in the standard of comparison or scale anchor. These possibilities can be distinguished by assessing the generalization of the emerging contrast effect across related targets, as well as the impact of competing information.

Contrast effects that are based on a subtraction process should be limited to evaluations of the category from which the information is subtracted, whereas contrast effects that are based on changes in the standard of comparison or scale anchor should generalize to evaluations of other targets along the same dimension of judgment. We propose that the latter possibility requires that the excluded information was thought about with regard to the relevant dimension of

judgment. If the excluded information was thought about with regard to some other dimension, any emerging contrast effects should merely reflect a subtraction process and should hence be limited to the target category from which the information is excluded.

Moreover, the size of subtraction-based contrast effects should be an inverse function of the amount of competing information that is represented in the construction of the target category: The more information is included in the temporary representation of the target category, the smaller should be the impact of subtracting any given piece of information from that representation. Empirically, subtraction effects can only be observed if the subtracted information is more extreme than other information included in the temporary representation.

Similarly, the model implies that the impact of using a given piece of information in constructing a standard or scale anchor should be an inverse function of the amount of other information: The more information is used in constructing a standard, the smaller should be the effect of using any additional piece of information in doing so. Moreover, comparison-based contrast effects can only be observed empirically if the implications of the excluded information are more extreme than the implications of other information used to construct a standard. To our knowledge, data bearing on these implications are not yet available, although the predictions are clearly testable.[1]

The assumption that the default operation is to include information that comes to mind, whereas exclusion operations need to be triggered by salient features of the task or its communicative context, has additional important implications for the predictions generated by the model. First, it suggests that assimilation effects should generally be more likely to be obtained than contrast effects, reflecting that the latter require the presence of salient cues that trigger exclusion operations. Second, it implies that the emergence of contrast effects requires extra processing steps, and more effort, than the emergence of assimilation effects. Accordingly, reaction-time studies should indicate that judgmental processes that result in contrast effects take more time than judgmental processes that result in assimilation effects. Moreover, competing tasks that tax subjects' processing capacities may be likely to interfere with exclusion operations, and may hence undermine the emergence of contrast effects, but facilitate the emergence of assimilation effects. Similarly, we may expect that variables that reduce an individual's motivation to invest in processing effort will also

[1]It is interesting to note that the same logic predicts that assimilation effects may also emerge as a function of changes in the construction of the standard under some restricted conditions. Suppose that the implications of excluded information are less extreme than the implications of other information used in constructing a standard. If so, using the excluded information in constructing a standard would result in a less extreme standard and hence in less pronounced contrast effects. Given that the available evidence is restricted to the exclusion of extreme information, we will not further address this possibility.

interfere with the emergence of contrast effects, but will facilitate the emergence of assimilation effects.

These assumptions received considerable support in research on Martin's (1986) set/reset model. Specifically, Martin et al. (1990) reported three experiments in which awareness of the priming episode resulted in contrast effects when subjects were motivated and able to process the information in sufficient detail. When subjects were distracted (Experiment 1) or unmotivated (Experiments 2 and 3), however, assimilation effects emerged, suggesting that inclusion represents the default option that is used under suboptimal processing conditions, whereas exclusion requires additional processing effort. Compatible with this assumption, Bodenhausen (1990) observed in a study on circadian variations in stereotyping that "night people" exhibited greater stereotypic bias when tested in the morning rather than at night, whereas "morning people" exhibited greater stereotypic bias when tested at night rather than in the morning. Apparently, forming a judgment at a nonoptimal time of day decreased subjects' processing efforts and facilitated the emergence of assimilation effects.

These findings suggest that assimilation effects should be more likely to be obtained the less relevant the judgment is to the individual's current goals, the higher the need for closure, and the lower the fear of invalidity (Kruglanski, 1980, 1990). By the same token, an individual's affective state at the time of judgment may be expected to moderate the emergence of assimilation and contrast. As a growing body of literature indicates, individuals in an elated mood seem less motivated to invest considerable processing effort than individuals in a neutral or mildly depressed mood (see Schwarz, 1990; Schwarz, Bless, & Bohner, 1991). Accordingly, individuals in an elated mood may be less likely to engage in the extra processing effort required by exclusion operations, thus undermining the emergence of contrast effects, despite the presence of other conditions that should be likely to elicit exclusion operations.

Finally, it is worth noting that the present analysis lends itself to research on stereotyping. Although the present chapter focused primarily on the impact of subordinate information on the evaluation of superordinate categories, the logic offered here can be extended to capture the conditions under which superordinate information results in assimilation or contrast effects in the evaluation of subordinate categories, as outlined in the introduction. Elaborating on this issue, however, is beyond the scope of this chapter.

Most certainly, future research will uncover additional variables that are likely to influence the inclusion or exclusion of highly accessible information from the cognitive construction of the target category. We hope that this research will support the heuristic usefulness of the general inclusion/exclusion framework offered here, which holds that the impact of easily accessible information is a function of whether it is included in or excluded from the temporary representations that individuals construct of the target category and its alternatives.

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